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MANAGING YOUR WOODLAND

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HOW TO DO IT GUIDES

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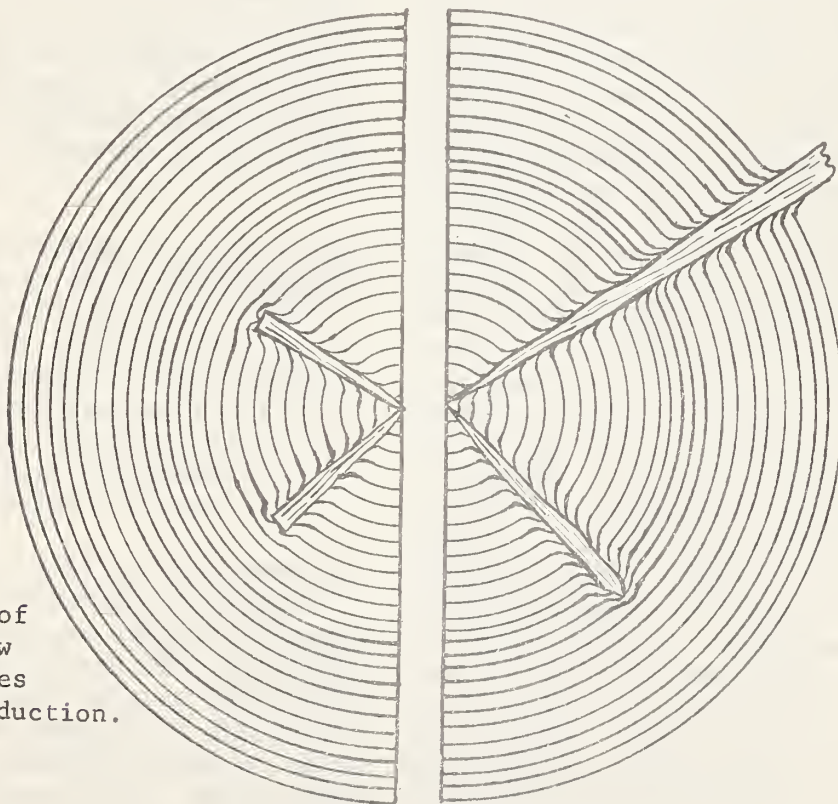
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PRUNING DOUGLAS-FIR TO INCREASE TIMBER VALUE

Is pruning of Douglas-fir trees worth the effort and cost? How can the owner of a woodland area get an increased financial return to pay back the pruning costs? Should your stand of second growth be pruned and how and when should you do it?

As a tree grows in size and height, the lower branches become shaded by adjoining trees and gradually die. The

branches stay on the tree or break off leaving a stub for many years. As the tree continues to grow, wood grows around the stub and eventually will cover over the stub of the branch. Lumber cut from the log will contain knots until these branches are all covered over. This may take from 20 to 40 years after the branch dies. Knots formed by these dead branches are black and become loose resulting



Cross section of log showing how pruning promotes clear wood production.

PRUNED

UNPRUNED

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in knot holes. If the branches stay alive, the knots, though tight, get larger and larger which means lower grades of lumber will be produced from cutting the log.

If a tree is pruned, the stub of the branch is covered over by wood growth in a few years. From then on, the tree will be producing knot-free wood from which clear lumber or veneer can be obtained when the log is cut. Since the mill operator can sell these products at a higher price, he can afford to pay a higher stumpage rate for the logs. This rate will vary, depending on the amount of growth in the clear portion of the log. If the annual rings are only two inches past the ends of the stubs, there will be little increase in log grade value since most of the clear material will be cut off in the slab or in trimming the lumber. As the thickness of the clear growth increases, the percentage of quality material increases and this should be reflected in the stumpage price.

Trees should be pruned at as early an age as possible to start clear growth sooner. Trees over 6" or 8" in diameter are usually considered to be too large for pruning. The branches will be larger and pruning costs will be higher. Also, the tree will not grow a large enough percentage of clear material before harvest age.

Only the better trees in the stand on fairly good sites should be pruned. These trees should be selected because of good form and growth rate and also to allow sufficient spacing for future growth. This is usually at about 20 foot spacing through the area or about 80 to 120 trees per acre. These trees will be the last trees in the stand to be logged. All of the unpruned trees will eventually be cut in thinning operations to promote growth in the pruned trees. In this way, the values to be gained by pruning will

be increased. The pruned trees should be permanently marked with a band of paint to prevent accidental cutting before maturity. A record showing the year of pruning and the number of pruned trees should also be kept to justify an increased sale price if the land is sold before the trees reach harvest age.

The best season for pruning is from late summer until early spring while the trees are relatively dormant. The bark is less likely to tear during this period and the subsequent rapid spring growth helps to cover the stubs more quickly.

Pruning can be done with a club or a hand pruning saw for the low dead branches. Pole pruning saws with 8 and 12 foot handles should be used for the higher branches. Goggles are helpful to keep sawdust out of the operator's eyes when cutting the higher branches. All dead branches and stubs should be removed. Green branches can be cut to a point where at least two thirds of the live crown remains on the tree. Cutting too many of the green branches will weaken the tree and slow down the growth rate. It is desirable to prune to a height of 17 feet on each tree to permit cutting a 16-foot log above the stump level. Pruning to a greater height to produce a second clear log is not considered economical at present. Young trees may have to be pruned several times to reach this height without removing too much crown in one operation. Branches should be cut as close to the trunk as possible at the edge of the swelling around the branch. Larger green branches may require undercutting to prevent saw bind or bark tearing when the branch breaks.

If numerous green branches are cut, a concentration of slash accumulates under the tree. These should be scattered away from the tree to prevent

accidental fires from building up extra heat around these highest value trees. The branches will also lie flatter on the ground and decompose more readily.

Pruning of green limbs from the southwest side of the tree that is exposed to direct sun from 2 to 5 p.m. is likely to expose the tree to sunscald. The sun cooks the growing area killing that side of the tree. Cut only one whorl of live branches each year from such exposed trees.

The cost of pruning is primarily a labor cost since the pruning tools are relatively inexpensive. An average of six trees can be pruned per hour of work. Often this work can be done by the owner during a slack season for his other work. The cost per tree will vary with the size of the tree, the size and number of limbs and the wages that are paid. When hiring labor for pruning, it is usually cheaper to pay for the work on the basis of the number of trees pruned rather than by the hours of work. Labor costs can be figured at about 25¢ per tree. Cash expenditure would be very much less if the owner did all of the work himself.

How much will pruning increase the future sale value of your trees? This cannot be definitely answered without a "crystal ball". However, on the basis of present stumpage prices, a 24" diameter log, 16 feet long, would usually be classed as a No. 2 sawlog with a stumpage value of about \$20 per MBM. A similar log pruned at an early age could be sold as a No. 3 peeler at a value of about \$40 per MBM. Thus the future value of the log would be doubled by 10 or 15 minutes of work while the tree is young. The supply of old trees with clear wood will become more scarce in future years as the virgin timber stands become more limited. Under natural conditions second growth stands will produce very little clear wood. It is probable that pruned logs will bring a much larger income in future years than is possible under present market conditions.

On a good site a stand of pruned trees averaging 24" in diameter and 100 trees to the acre might have a volume of about 100 MBM per acre. Only the butt log of each tree contains extra value material due to the pruning. However, these logs contain the following percentages of the total tree volume depending on the number of 16-foot logs:

3 logs per tree	55%
4 logs per tree	41%
5 logs per tree	32%
6 logs per tree	27%
7 logs per tree	23%

These percentages can be used to determine the increase in stumpage value for an individual tree or for the entire stand. Assuming that the stumpage value of the pruned log is double the value of the unpruned logs, the cash value of the timber would be increased by the above percentages depending on the height of the trees.

Pruning can increase the future value of your young timber stand by improving the quality of the sawlogs. However, the work and investment in pruning will be lost if the timber is not managed to protect and promote growth in the selected trees. Premature cutting of the trees will not produce an increase in stumpage value. A pruned tree is an investment that will only return a profit if the tree is permitted to grow to an optimum size and then is sold as a quality product.

Studies of logs being cut in the sawmill indicate that pruning will be profitable only if the tree is left in the stand long enough to increase at least 6" in radius or 12" in diameter. The actual time to put on this additional diameter or to reach 24" will depend upon the growth rate of the tree. Therefore, all pruned trees should be given release by thinning out competing trees. This will stimulate or maintain a good growth rate of the pruned trees.

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